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MAXIMO BARON  
7th "B"  
SANTA FE 3586  
1425 BUENOS AIRES,  
ARGENTINA

EXAMINER

DEB, ANJAN K

ART UNIT	PAPER NUMBER
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2858

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/985,989

Applicant(s)

BARON, MAXIMO

Examiner

Anjan K Deb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 1,3,8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the following as described in the specification.

Adjusting cell temperature by means of a thermoregulating device (see claim 8).

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

The drawings are objected to because Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Appropriate correction is required.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

### ***Specification***

2. The disclosure is objected to because of the following informalities:

In page 3, last paragraph “near of far” is not clear perhaps it should be “near or far”

In page 6, line 6 “that” should be –than—

In page 6, line 8 “and” should be –an—

In page 10, last line, value of permittivity () is missing, perhaps “()” should be --( $\epsilon$ )--

In page 16, last line, “capacities” should be changed to --capacitance--. Similarly, all similar occurrences in the disclosure should be changed so as to conform to industry standard terminology.

In page 20, line 17, the unit of inductance should be changed from “mHy” to –mH--.

In page 22, line 4, “thena” should be changed to –then a—

In page 23, last paragraph, the unit of inductance should be changed from “mHy” to –mH--.

In page 24, line 4, the unit of inductance should be changed from “mHy” to –mH--.

Similarly, change all occurrences of “mHy” to –mH--.

### ***Abstract***

In line 1 of abstract, “singlr” should be changed to –single—

In line 6 of abstract, “excluding” should be changed to “improved—

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities:

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“in a continuous fashion” should be changed to “continuously” or “in a continuous manner”.

“being said cell and connection box linked” should be changed to “said cell and connection box are linked”

replace “also” with “and—

The numbering of claims have been corrected so that there is only one claim 1 and the second claim 1 (page 28, line 18) has been renumbered as claim 2. Consequently, claims 2-7 are renumbered as claims 3-8.

Claim 3 is objected to because of the following informalities:

In claim 3, change “mHy” to “mH--.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The section of wires should be represented by its unit of area in  $\text{mm}^2$ . Alternatively, if the wire has a circular cross section then "section" should be replaced by --diameter--.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "section" in claim 1 is used by the claim to mean "diameter", while the accepted meaning is "cross sectional area." The term is indefinite because the specification does not clearly redefine the term.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al. (US 4,559,493), in view of Bachman (US 4,782,282), and further in view of Hara (US 3,319,209).

Re claims 1,7 as best understood, Goldberg et al discloses an oscillating circuit (Fig. 2,3) for determining continuously the purity of single or multi-component liquid (water and ink

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mixture) from the static dielectric permittivity (negligible phase shift)(column 4 lines 18-26) comprising a measuring cell 8 (Fig. 2,3 and Fig. 4) linked to multimeter (display 18)(also see Fig. 3, digital panel meter DPM) and frequency meter (frequency to voltage converter).

Goldberg et al did not expressly disclose measuring cell has capacitance in vacuum between 150 and 200 pF, and inductance made of wire having section (diameter) of 0.01 mm to 0.1 mm linked to an RLC oscillating circuit.

Bachman discloses material moisture (liquid) detection by determining dielectric constant (dielectric permittivity) comprising measuring cell 10 having 10 pf capacitance and an inductance L1, L2 having 10 nH and 50 nH respectively connected to oscillator 36 to form an RLC oscillating circuit (Fig. 7)(column 9 lines 47-58).

Hara discloses coil made of small diameter wire (0.2mm – 0.3mm) winding on a core 41 (Fig. 2) for precisely adjusting oscillating frequency in an oscillator circuit (Fig. 1).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Goldberg et al by adding a measuring cell having capacitance and inductance disclosed by Bachman and by modifying the cell capacitance in the range 150-200 pf and by modifying the diameter of inductance wire used by Hara in the range of 0.01 mm to 0.1 mm wire so as to form an RLC oscillating circuit having a desired oscillation frequency for detecting accurately the dielectric permittivity of a particular fluid.

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Re claim 2, Goldberg et al. discloses frequency in the range 3 kHz to 300 kHz and below 3 MHz for achieving negligible phase shift (operating in linear region)(column 4 lines 18-26), which encompasses the claimed frequency range.

Goldberg et al. as modified by Bachman et al. did not expressly disclose selecting frequency below 1 MHz and preferably between 10 and 200 kHz and more preferably at 100 kHz.

OVERLAP OF RANGES: In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) [ See MPEP 2144.05 [R-1] Obviousness of Ranges:]

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify the combination system of Goldberg et al. as modified by Bachman et al. and Hara by selecting the claimed range of oscillating frequencies for detecting accurately the dielectric permittivity of a particular fluid.

Re claim 3, Goldberg et al. as modified by Bachman and Hara did not expressly disclose inductance value in the range 2.5 to 4.5 mH.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify the combination system of Goldberg et al. as modified by Bachman et al. and Hara by adding inductance value in the range 2.5 to 4.5 mH for achieving a desired oscillation frequency that is suitable for detecting dielectric permittivity of a particular fluid.



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Re claim 4, Goldberg et al. and Bachman et al. did not expressly disclose ferromagnetic core material.

Hara discloses core 41, broadly interpreted as being made of ferromagnetic material (Fig. 2).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify the combination system of Goldberg et al. and Bachman et al. by adding a core disclosed by Hara and by adding a ferromagnetic material to core for achieving desired range of inductance for achieving a desired oscillation frequency that is suitable for detecting dielectric permittivity of a particular fluid.

Re claim 5, the combination system of Goldberg et al., Bachman et al., and Hara did not expressly disclose change in frequency do not exceed 20 Hz but would have obvious since Bachman et al. discloses oscillation frequency is tuned to a predetermined frequency near resonant frequency.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify the combination system of Goldberg et al., Bachman et al., and Hara by adding an oscillating circuit whose frequency do not exceed 20 Hz after several hours of continuous operation so that the oscillation frequency remains tuned to a predetermined frequency near resonant frequency as disclosed by Bachman et al.

Re claim 6, Goldberg et al. discloses cell composed of parallel plates either planar or cylindrical (column 4 lines 50-61).

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Goldberg et al., Bachman et al. and Hara did not expressly disclose plate separation distance between 0.5 to 5 mm.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Goldberg et al. by adding plate separation distance between 0.5 to 5 mm for achieving a desired capacitance of cell Co in the absence of liquid for accurately measuring liquid dielectric permittivity ( $\epsilon'$ ) (see Goldberg column 3 lines 3-15).

8. Claims 1,7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilska (US 3,793,585).

Re claims 1,7, as best understood, Wilska discloses RLC oscillating circuit (Fig. 1) operating in MHz frequency range, for determining continuously single or multi-component liquid (moisture) from dielectric permittivity (dielectric constant)(column 3 lines 24-28) comprising a measuring cell M and inductance L wherein a change in dielectric constant of material (moisture) flowing in cell M causes a change in frequency of oscillating circuit detected by meter (column 2 lines 30-45) (column 3 lines 24-28).

Wilska did not expressly disclose measuring cell has capacitance in vacuum between 150 and 200 pF, and inductance made of wire having section (diameter) of 0.01 mm to 0.1 mm linked to an RLC oscillating circuit.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Wilska by adding measuring cell having capacitance is in the range 150-200 pf and inductance made of 0.01 mm to 0.1 mm wire to form an RLC oscillating circuit for achieving a desired oscillation frequency for detecting accurately the dielectric permittivity of a particular

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fluid because Wilska discloses the frequency of oscillation is determined by the value of resistance capacitance and inductance in RLC circuit.

***Allowable Subject Matter***

9. Claim 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, and claim objections because of the informalities, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Reasons for Indicating Allowable Subject Matter***

10. The following is an examiner's statement of reasons for allowance:

The primary reason for allowance of claim 8 is for the claimed sequence of steps including the steps of adjusting measuring cell temperature by means of a thermoregulating device or by determining, through measurement with a thermistor placed in the cell, the temperature of said cell both empty and filled, having the liquid flow through the cell, recording the frequency values of both the empty and filled cell with a frequency meter connected to a computer, and establishing the permittivity value of the fluid in real time through the calculations performed by the computer.

***Pertinent Art***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Benson et al. (US 4,736,156) discloses a method for on-line detection of moisture by determining material 550 dielectric constant (dielectric permittivity) forming a capacitor between a pair of parallel plates (electrodes) and an inductance 528 connected to oscillating circuit 520 (Fig. 1).

Jones et al. (US 4,907,442) discloses method and system for determining multi-component liquid (multi-phase fluid) capacitance comprising temperature regulated capacitance measurement cell. Jones lacks an RLC resonant circuit for measuring static dielectric permittivity multi-component liquid.

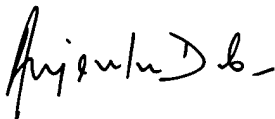
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is (703) 305-5219. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le, can be reached at (703)-308-0750.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone numbers are (703)-308-0956 and (703)-305-4900.



**Anjan K. Deb**

Patent Examiner

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10/20/03

Tel: 703-305-5219

Fax: 703-746-4466

E-mail: [anjan.deb@uspto.gov](mailto:anjan.deb@uspto.gov)